ABSTRACT OF THE DISCLOSURE

The present invention is related to a mobile telecommunication system, and more specifically, to a multi-peak detector of the mobile telecommunication system and a method thereof for high-speed acquisition of paths necessary for a timing synchronism using a hardware multi-peak detector. The peak detector according to the present invention can include a circuit that cumulatively saves a plurality of energy values that have been calculated through a matched filter and a squarer, and a circuit that outputs several energy values out of the cumulatively saved plural energy values, which are saved based on a high-ranked enable control signal and a high-ranked mask signal.